

Low Speed/Full Speed/High Speed USB Hub Controller USB 3.1 3.3V Tray 100-Pin VQFN EP

Manufacturers	Microchip Technology, Inc
Package/Case	VQFN-100
Product Type	Interface ICs
RoHS	
Lifecycle	



Images are for reference only

Please submit RFQ for USB5906-I/KD or [Email to us: sales@ovaga.com](mailto:sales@ovaga.com) We will contact you in 12 hours.



General Description

Microchip’s USB5906 SmartHub is a 6 port, SuperSpeed (SS), low power, configurable USB 3.1 Gen1 hub and fully compliant with USB-IF’s USB 3.1 Gen1 specification. The USB5906 also supports Hi-Speed (HS), FullSpeed (FS) and Low Speed (LS) USB signaling, offering complete coverage of all defined USB operating speeds. The new SuperSpeed hubs operate in parallel with the USB 2.0 controller, so 5 Gbps SuperSpeed data transfers are not affected by slower USB 2.0 traffic.

Microchip SmartHub’s are defined as USB hubs that integrates system-level functions typically associated with a separate MCU or processor. The USB5906 SmartHub enables communication to other peripherals in addition to USB. The USB5906’s I/O Bridging capability allows the host to seamlessly interface to peripherals via I2C, SPI or GPIOs over USB. The USB5906 also enables a downstream device to take control of the host system by swapping roles and becoming the host port. USB5906 based systems can also switch between two different hosts if required. This role changing technology is called FlexConnect and can be initiated through hardware or software commands.

New technologies like the USB Type-C connector and power delivery are changing the USB landscape. Designed to simplify the latest USB hub designs, the USB5906 has built-in Billboard support giving you the option to offload this function from the power delivery controller onto the hub. In addition, the hub can expand beyond six ports through Port Splitting which allows for embedded applications to only use the interface needed for internal USB connections.

MPLAB® Connect Configurator, Microchip’s proprietary software utility, can be used to program on-chip, One Time Programmable (OTP) ROM for the USB5906 which stores required register settings to ensure the desired start-up configuration at power on. All LED, GPIOs and port control signal pins are under firmware control, allowing for maximum operational flexibility. However, for even more simplicity, the USB5906 can be configured through a series of external low-cost resistor bootstraps. A handful of bootstrap pins are available on the USB5906 to enable standard configurations for GPIOs and downstream ports. No OTP programming required.

Features

Not Recommended for new designs - See USB5906C

Six downstream USB3.1 Gen1/2.0 ports w/ support for a single USB Type-C upstream port

Integrated Hub Feature Controller (HFC) enabling I/O Bridging and FlexConnect

USB to I2C/SPI/GPIO bridge endpoint support

Reversible upstream and downstream Port 1 roles on command

Integrated 2:1 MUX for direct support of the new USB Type-C ports

Integrated Billboard class device for Power Delivery notification support

PortSplitting - USB downstream port can be split for custom applications using embedded USB3 devices in parallel with USB2.0 devices.

Battery Charging - USB-IF rev1.2 support on downstream ports (DCP, CDP, SDP) including legacy Apple® iOS, Blackberry®, China Charging and many others

Port Config Straps - Predefined configuration of port settings – Battery Charging ports, Non-Removable ports, Disabled ports

USB Link Power Management (LPM) support

IETF RFC 4122 compliant 128-bit UUID

Compatible with MSFT Windows 10, 8, 7, XP, Apple OS X 10.4+, and Linux hub drivers

Available in 100-pin (12mm x 12mm) VQFN RoHS compliant package

Industrial grade temperature support (-40°C to +85°C)

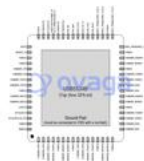


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